

CLAIMS

1. A method of controlling paging flow in a network for cellular communications, characterized in that it comprises the steps of

- (a) at a control node (14c), receiving (305, 310, 315) a request for paging a mobile station;
 - (b) determining a location area (11c) in which said paging shall be performed;
 - (c) checking (320) whether the number of paging transactions which are ongoing for the location area (11c) is lower than at least one maximum number of ongoing paging transactions allowed for the location area (11c);
 - (d) after a determination that said number of ongoing paging transactions is lower than said maximum number, updating (325) the number of ongoing paging transactions for said location area and processing said paging request.
- 15
- 2. The method of claim 1, characterized in that it further comprises the step of:
 - (e) after a determination that said number of ongoing paging transactions is higher than or equal to said maximum number, checking (330) whether said paging request derives from a Location Services request.
- 20
- 3. The method of claim 2, characterized in that it further comprises the step of:
 - (f) checking (505) whether said Location Services request is a request for last known location of the mobile station.

4. The method of any one of claims 2 or 3, characterized in that it further comprises the step of:

- (g) checking (515) whether said Location Service request comes from an Emergency Center or a Law Enforcement Agency.

5

5. The method of claim 3, characterized in that it comprises the step (510) of retrieving information on said last known location from a Visitor Location Register (15).

6. The method of claim 4, characterized in that it comprises the step (525) of, after a
10 determination that said Location Services request comes from an Emergency Center or a Law Enforcement Agency, serving (535, 325) the paging request with priority.

7. The method according to any one of the preceding claims, characterized in that
said updating step (325) comprises the step (405) of incrementing at least one counter
15 indicative of said number of ongoing transactions which is comprised in said control node
(14c) when a paging request is accepted for processing by the control node (14c), and the
step (415) of decrementing said counter when a paging response has been returned by
said mobile station.

20 8. The method of claim 1, characterized in that said transactions are of at least one kind selected from the group comprising Call Control transactions, Supplementary Services transactions, Short Message Service transactions and Location Services transactions.

9. The method of any one of claims 1 or 8, characterized in that a respective maximum number which is allowed for said location area is defined for transactions of each of the kind comprising Call Control transactions, Supplementary Services transactions, Short Message Service transactions and Location Services transactions,
5 respectively, said checking step (c) being performed for each kind of transaction.

10. The method of any one of the claims 1 to 9 wherein the control node is a Mobile services Switching Centre or a serving General Packet Radio Services support node.

10 11. A telecommunications system for controlling a paging flow in a network for cellular communications comprising at least one control node (14c) associated with a location area (11c) serving a mobile station to be paged, the control node (14c) comprising means for receiving paging requests, characterized in that the system comprises:

15 memory means (14c, 15) for storing at least one maximum number of ongoing paging transactions allowed for said location area (11c) and for storing the number of ongoing paging transactions;

comparing means for checking whether said number of ongoing paging transactions is lower than said at least one maximum number;

20 paging means for paging said mobile station in response to an outcome of said comparing means.

12. The telecommunications system of claim 11, characterized in that it comprises Location Services Request determining means for determining whether a paging request
25 received by said control node (14c) derives from a Location Services request.

13. The telecommunications system of claim 11, characterized in that said Location Services Request determining means are set so as to check whether said Location Services request is a request for last known location of the mobile station.

5

14. The telecommunications system of any one of claims 11 to 13, characterized in that said Location Services Request determining means are set so as to check whether said Location Services request comes from an Emergency Center or a Law Enforcement Agency.

10

15. The telecommunications system of any one of claims 11 to 14, characterized in that said control nodes (14c) comprises buffer means for temporarily storing said paging request if said Location request is a request coming from an Emergency Center or from a Law Enforcement Agency, said paging means being set so as to serve said paging request 15 with priority.

16. The telecommunications system of claim 11, characterized in that said control node (14c) comprises at least one counter indicative of said number of ongoing transactions, said counter being incremented when a paging request is accepted for 20 processing by the control node (14c) and being decremented when a paging response has been returned by said mobile station.

17. The telecommunications system of claim 11, characterized in that said memory means comprise stored therein respective maximum numbers indicative of the maximum 25 number of allowed ongoing paging Call Control transactions, Supplementary Services

transactions, Short Message Service transactions and Location Service transactions, respectively, said comparing means being set so as said checking is performed for each of said Call Control transactions, Supplementary Services transactions, Short Message Service transactions and Location Service transactions, respectively.

5

18. The telecommunications system of claim 11, characterized in that said memory means are comprised in any one of said Mobile Services Switching Center, a Visitor Location Register connected to said Mobile Services Switching Center, a Base Station Controller connected to said Mobile Services Switching Center and serving said location area.

10

19. The telecommunications system of any one of claims 11 to 18, characterized in that said comparing means are comprised in said control node.

15

20. The telecommunications system of any one of claims 11 to 19, characterized in that said paging means comprise said Mobile Services Switching Center (14c) and a Base Station Controller serving said location area.

20

21. The telecommunications system according to any one of the preceding claims, characterized in that said number of ongoing paging transactions is the overall number of ongoing transactions, regardless of the kind of transaction.

25

22. The telecommunications system of any one of the claims 11 to 21 wherein the control node is a mobile services switching centre or a serving general packet radio services support node.